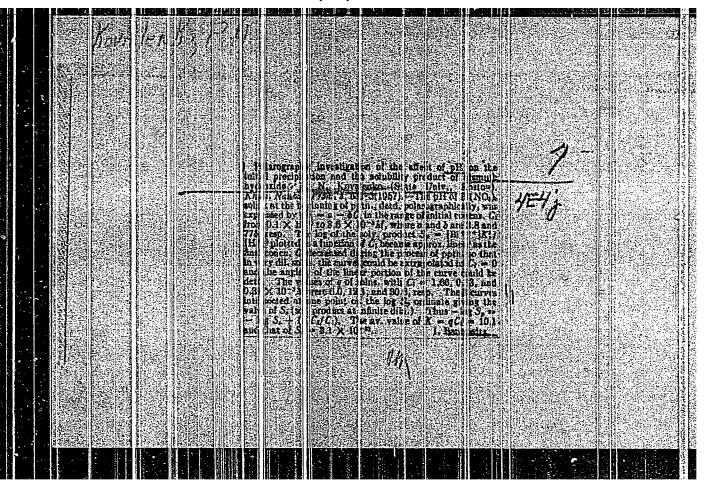
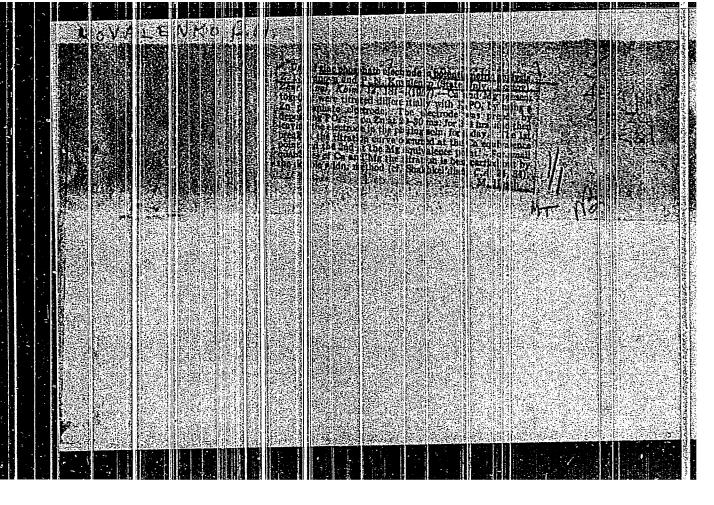
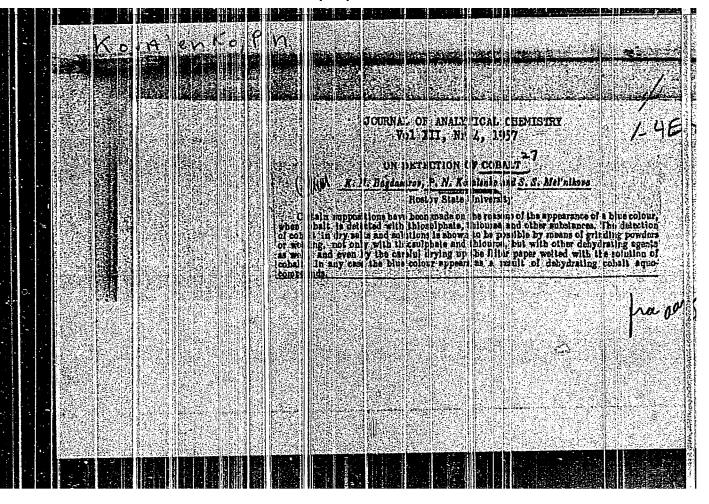
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BUSEV, A.I.; KOVALENTO, P.N.

EV, A.I.; KOVALENTO, P.N.

Conditions for separation by electrolysis of bismuth from cobalt and polarographic determination of the latter. Vest. Nock. un. Ser. mat., mekh., astron., fiz. khim., 12 no.5:151-156 '57. (MIRA 11:9)

1. Kafedra analiticheskoy khimii Moskovskogo gosudarstvonnogo universiteta.

(Copper) (Photometry)

CIA-RDP86-00513R000825520010-8" APPROVED FOR RELEASE: 06/14/2000

AKHVONEN, V.A.; GIENBER!, Ye.I.; GENIS, M.Ya.; FEYGINA, E.M.

ZAKHAROVA, V.S.; KOVALEVA, R.A.; ZALEVSKAYA, T.N. SHASHKIN,

M.A.; KOVALENKO, P.N.; ZAK, A.G.; AKHMETOVA, S.A.; MOSTRYUEOV,

P.M.; VITS YSKAII., N.D.

Brief reports. Zav.lab. 23 no.7:801-802 '57.

(MLRA 10:8)

l.Institut geologii rudnykh mesterozhdeniy, petregrafii, mineralegii i geokhimii AN SSR (for Akhvonen) 2.Dnepropetrovskiy Truboprokatnyy zavod imeni V.I. Lenina (for Grenberg, Genis) 3. Angarskiy remontnomekhanicheskiy savod (for Shashkin) 4.Restevskiy gosudarstvennyy universitet (for Kevalenko) 5. Karagandinskiy zavod sinteticheskogo kauchuka (for Zak, Akhmetova, Mostryukov, Veyseyskaya).

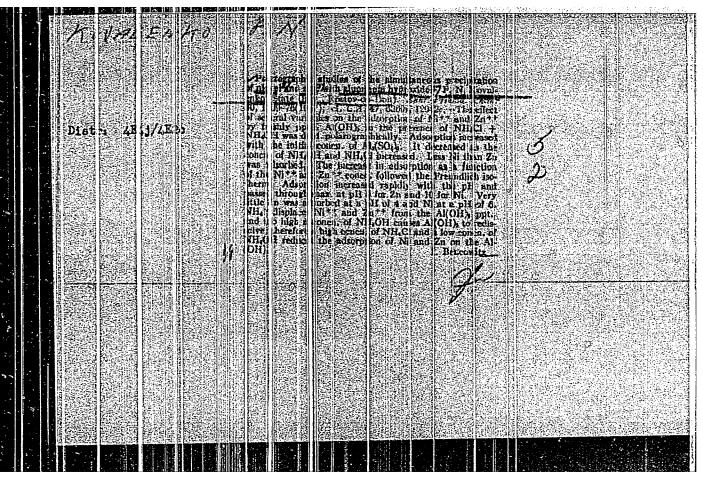
(Chemistry, Analytic)

COVALINKO, P.N.

Importance of pH at the beginning of gallium hydroxide precipitation and the determination of the solubility of its derivatives. Zhur. prikl.khim. 30 no.1:52-58 Ja '57. (MIRA 10:5)

1. Rostovskiy na l'onu gosudarstvennyy universitet imeni V.M. Molotova.
(Hydrogen-ion concentration)
(Gallium hydroxide)

"APPROVED FOR RELEASE: 06/14/2000 CIA-RDP86-00513R000825520010-8



AUTHCRS:

Busev, A. I., Kovalenko, P. N.

507, 156 - 58 - 1 - 19/46

TITLE:

The Folarography of Indium on a Magnesium-, Calcium-, and Zinc-Chloride Base (Folyarografirovaniye indiya na fone

khloridov magniya, kalitsiya i tsinka)

PERIODICAL:

Nauchnyje dokłady vysskey shkoly, Khimiya i khimicheskaya

tekhnologiya, 1958, Nr 1, pp. 79 - 82 (USSR)

ABSTRACT:

Zinc refinery waste in which the indium content does not surpass 0,1% is one of the sources of indium production. Therefore an accurate and reliable determination method of indium craces in the case of which the main components of the mentioned waste have not to be seprated is very desirable. A survey of the methods used is given, their shortcomings are mentioned as well (Refs 1-3). One of the quickest methods is the polar graphic method. In the case of very small indium quantities the authors used the method of wet cementation for the purpose of concentration and separation of not noble metals. The indium reduced to metal by means of zinc excess (in a diluted sulfuric acid solution) is solved together with zinc and then is investigated polar ographically on the base of the zinc palt. The detection of optimum conditions of a

Card 1/4

APPROVED FOR RELEASE: 06/14/2000 CIA-RDP86

CIA-RDP86-00513R000825520010-8"

The Polarography of Indium on a Magnesium-, Calcium-, SOV 156-58-1-19/46 and Zinc-Chloride Base

quantitative indium determination on a base of strong electralytes (second group of the Mendeleyev system) represents the subject of the present paper. For the investigation of the behaviour of the indium ions on a droppingmercury electrode, the visual polarograph N-7 (dating from 1946) of the Gor'kiy University Scientific Research Institute (NII Gor'kovskie universiteta) as used. Furthermore the authors used the mirror galvan meter of the Institut fizicheskogo priborostroveniya LGU (Institute of Physical Instruments and Equipment of the Leningrad State University). In order to find the determinability of indium in various media the influence of the concentrations of the electrolytes mentioned in the title and the pH-values of the solution were investigated. The results for magnesium chloride are shown in figures 1 and 2. Table 1 shows the results with respect to CaCl2. The working out of the polarographic investigation of indium on the base of the zinc-electrolyte which often contains indium as admixture (Ref 5) is very important. Table 2 shows the resulting. The obtained results make possible the following conclusions:

Card 2/4

SOV/156 -58-1-19/46 The Polarography of Indium on a Magnesium-, Calcium-, and Zinc-Chloride Base

1)The possibility of using concentrated solutions of magnesium-, calcium-, and zinc-chloride as base for the polarographic determination of small indium quantities (order of magnitude 10^{-4} - 10^{-3} mol/1) was proved. 2) The potential of the half wave for indium is shifted to the negative side with rising concentration and the pE-value of all investigated salt base solutions. 3) In all cases the irreversibility of the electrolytical indium reduction was observed. The case of the indium

polarographic investigation on a base of 0,2 M-solution of calcium chloride (pH 1,70) is an exception. There are 2 figures 2 tables, and 5 references, 4 of which are Soviet.

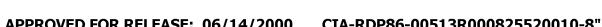
ASSOCIATION: Kafedra analizicheskoy khimii Moskovskogo gosudarstvennogo universiteta am. M.V. Lomonosova (Chair of Analytical Chemistry

of the Moscow State University imeni M.V. Lomonosov)

SUBMITTED:

October 15, 1957

Card 3/4



The Polarography of Indium on a Magnesium-, Calcium-, SOV/156 58-1-19/46 and Zirc-Chloride Base

Card 4/4

AUTHORS:

Kovalenko, I. N., Gayderovich, O. I.

SOV/156-58-2-22/48

TITLE:

Determination of the pH-Value of the Beginning of the Precipitation and (f the Astivity-Product of Silver-Hydroxide by Mean of the Polarographic Method (Opredeleniye znacheniya pH nachal osazhdeniya i proizvedeniya aktivnosti gidrookisi serebra

polyarograficheskim metodom)

PERIODICAL:

Nauchnyye doklady vysshey shkoly. Khimiya i khimicheskaya tekhnologiyê, 1958, Nr 2, pp. 294-296 (USSR)

ABSTRACT:

The determination of the afore-said pH-value is of importance for the solution of several problems of chemical technology and analytical chemistry of silver. The purpose of the present investigation is to determine the distance of the pH-values both at the beginning and at the end of the silver-hydroxide precisitation in dependence on the silver-concentration and to calcullate the activity-product therefrom. For the purpose of determining the silver-concentration, a) the method of additions and b) the method of the "straight line of calibration" (Fig 1) were applied. An abrupt decrease of the diffusion current at a certain pH-value proved the formation of the solid phase of this hydroxide. The beginning of the precipitation of AgOH as deposit

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SOV/156-58-2-22/48

Determination of the pH-Value of the Beginning of the Precipitation and of the Activity-Product of Silver. Hydroxide by Means, of the Polarographic Method

depends on the initial concentration of the silver. Figure 2 shows the decrease of the silver-ion-concentration in dependence on the pH of the solution. An abrupt decrease in concentration takes place at pH 9,2 to 9,3, according to the initial concentration of silver which indicates the formation of the solid AgOH-phase. Silver-concentrations which are formed as pH > 9,2 to 9,3 were used for the calculation of L. In order to fir.d the value of the activity-product L for silverhydromide, a diagram of the dependence - lgL_p on the Ag^+ - cor^* centration which decreases due to the increasing pH-value, was established (Fig 3). Within the range of low concentrations of the silver-ions a linear dependence exists between the negatives logar: thm a of the solubility product and CAg (Refs 2, 3). The value a is obtained by extrapolation of the curves of figure up to the intersection with the ordinate, i.e. one of an infinitely low silver-concentration, if f = 1. All curves, independent of the initial concentration of the investigated salt AgNO3, coincide in one point which is located on the ordi

Card 2/4

SOV/156-58-2-22/:0

Determination of the pH-Vs lue of the Beginning of the Precipitation and of the Activity-Product of Silver-Hydroxide by Means of the Polarographic Method

nate and they cut off a section equal to - $\lg L_a = 7.25$. $L_a = 5.63. \cdot e^{-8}$. The sources available from publications give contradictory data on the solubility product. They indicate that the determinations were carried out under conditions of different honic density (Ref 4). It follows from figure 4 (dependence of - $\lg L_p$ on the pH of the solution) that the deposit taking place in connection with the hydrolysis of a silver-salt is AgON. There are 4 figures and 4 references. So of which are Soviet.

ASSOCIATION:

Kefedra analiticheskoy khimii Rostovskogo-naDonu gosudarstven universite:a (Chair of Analytical Chemistry of the Rostov-na-Ebonu State University)

SUBMITTED:

October 15, 1957

Camd 3/4

SOV/156-58-2-22/48

Determination of the pH-Value of the Beginning of the Precipitation and of the Activity-Product of Cilver-Hydroxide by Means of the Polarographic Method

Gard 4/4

"APPROVED FOR RELEASE: 06/14/2000

CIA-RDP86-00513R000825520010-8

507/156-58-4-24/49 Kovalenko, P. N. AUTHOR: Investigation of the Adsorption of Trivalent Antimony for Manganes Dioxide (Izucheniye adsorbtsii trekhvalentnoy sur'my dvuokis'yu TIT E: margantsa) Nauchny, e doklady vysshey shkoly. Khimiya i khimicheskaya tekhno-PERIODICAL: logiya, 1958. Nr 4, pp 710-713 (USSR) The influence of manganese (II)-ions upon the colorimetric determination of antimony was investigated and it was found that large ABSTRACT: quantities of manganese do not exert any influence upon the accurates determination of antimony. The colorimetric determination was carried out by means of the spectrophotometer FEK-2. The adsorbabil: of MnO2 for antimony as dependent on the concentration of the antimony solution was investigated and it was found that the adsort tion represents a hyperbolical curve and obeys the Fraundlichadsorption law. The adsorbability of antimony for MnO, depends on time; within two hours the the adsorption decreases from 80 to 30 i.e. a 2.7-fold decrease. The highest adsorbability of the MnO2 west found immediately after its formation .- There are 4 figures, 2 take Card 1/2

SOV/156-58-4-24/49

Investigation of the Adsorption of Trivalent Antimony for Manganese Dioxide

and 9 references, 4 of which are Soviet.

ASSOCIATION: Kafedra analiticheskoy khimii Rostovskogo-na-Donu gosudarstvennogo priversiteta (Chair of Analytical Chemistry at the Rostov-na-Donu

Biete University)

March 3: 1958 SUBMITTED:

Card 2/2

AUTHORS:

Kovalenko, F. N., Moricheva, N. P.

sov/156-58-4-25/49

TITLE:

Adsorption of Antimony on Copper Hydroxide and the Electrolytis

Separation of Cu(OH) 2 From Antimony (Adsorbtsiya sur'my

gidrookis'yn medi i elektroliticheskoye otdeleniye Cu(OH)2 ot

sur 'my)

PERTODICAL:

Nauch yye doklady vysshey shkoly. Khimiya i khimicheskaya

tekhnologiya, 1958, Nr 4, pp 714-717 (USSR)

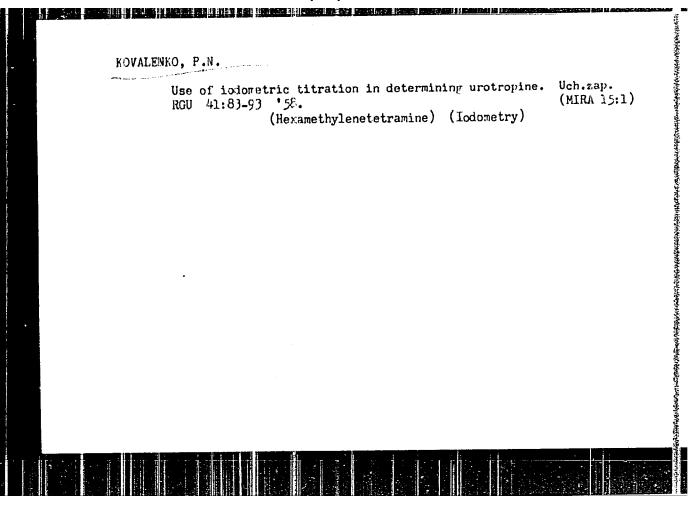
ABSTRACT:

The absorption of antimony (III) on copper hydroxide correspo to Langmuir (Lengmyura)'s adsorption isotherm. The rapid separation of copper from small amounts of antimony is carrie out electrolytically from ammoniacal or hydrochleric solutions in the presence of the depolarizer ammonium persulfate. After the electrolysis small amounts of copper in antimony do not the electrolysis small amounts of copper in antimony do not disturb the spectrophotometric determination of antimony with the methyl violet complex. In the presence of antimony (V) it is necessary to carry out a reduction with SnCl solution.

There are 4 figures, 2 tables, and 10 references, 3 of which

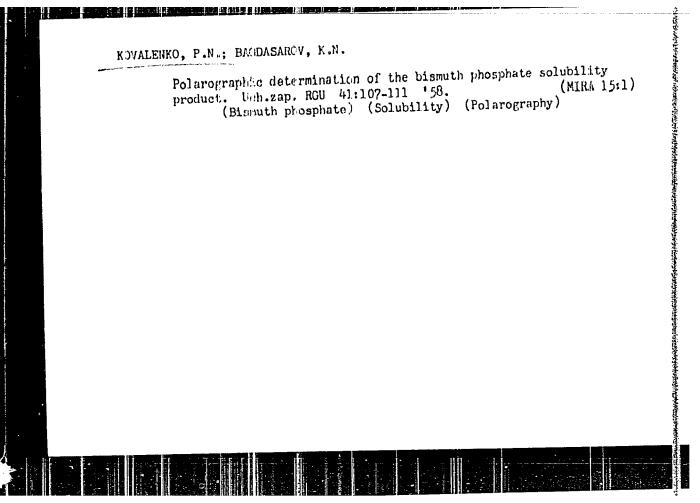
are Soviet.

Card 1/2



IEKTORSKAYA, N.A.; KOVALENKO, P.N.

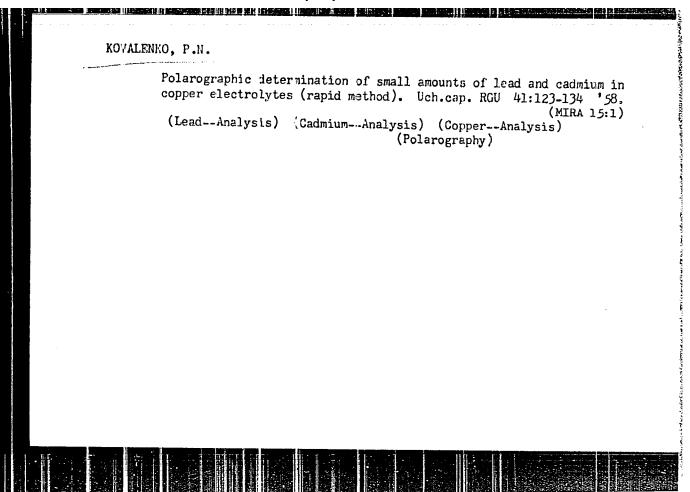
Electrode polarization in the polarographic determination of antimony, bismuth, lead, and tin. Uch.zap. RGU 41:95-105 '58. (MIRA 15:1) (Metals--Analysis) (Polarography)



IVANOVA, Z.I.; KOVAIENKO, F.N.

Mercurimetry in the potentiometric determination of chlorides. Uch.zap. RGU 41:113-122 '58. (MIRA 15:1)

(Chlorides) (Potentiometric analysis) (Mercurimetry)



5(2,4) AUTHORS:

-Kovolerko, F. N., Dmitriyeva, V. L.,

SOV/153-58-4-7/22

(Deceased)

TITLE:

Electroanalysis Using Aluminum Electrodes (Elektroanaliz

s primeneniyem alyuminiyevykh elektrodov)

PERIODICAL:

Izvestiya vysshikh uchebnykh zavedeniy. Khimiya i kimiches-

kaya tekhnologiya, 1958, Nr 4, pp 43 - 48 (USSR)

ABSTRACT:

Platinum cannot be widely used for electroanalysis, because it is a scarce and very precious metal. The apparatus required for this purpose is very complex, too (Ref 1). The authors investigated the bahvior of the ions in the electroanalysis of some salts by means of aluminum cathodes, because it seems very

urgent to find a substitute for the expensive

platinum electrodes. The problem is not yet solved, because the properties of the substitute anodes are insufficient. However, the spiral passivated aluminum electrodes of the university and chair mentioned in the association possess the following advantages: 1)

Card 1/4

Electroanalysis Using Aluminum Electrodes

SOV/153-58-4-7/22

Accessibility and inexpensiveness of the material. 2) Simple praceding processing of the aluminum surface (formation of a solid oxide-film). 3) In several cases the preceding processing of the electrode surface is no longer necessary. Otherwise it is carried out according to reference 9. The properties of the aluminum electrodes were investigated under conditions unfavorable to them; in the electrolysis of metals in citric acid buffer solutions. Table 1 presents the optimum values of the decomposition voltage and cathodic separation potential at certain values of pH, temperature and concentration of the buffer solution. On the basis of the electrolytic characteristics the authors elaborated methods of quantitative separation and determination by using an aluminum electrode, i.e. for copper, lead, bismuth, cadmium and zinc. The optimus conditions for that are shown in table 2. The authors have drawn the following conclusions from the results: 1) It was confirmed that the oxidized aluminum cathode can be applied to the electrolytic determination of the above mentioned nonferrous metals; 2) Increase in

Card 2/4

Electroanalysis Using Aluminum Electrodes

sov/153-58-4-7/22

temperature and pH of the copper solution decreases the decomposition voltage (E) of its salt: simultaneously the separation potential (E $_{\rm k})$ of copper becomes more negative; 3) E of the lead and bismuthsalts decreases with increasing temperature: the Ep of lead becomes more negative, that of bismuth more positive. E of the lead salt increases with the pH of the solution, the E of bismuth salt, however, decreases: E of these two latter metals becomes more negative; 4) hydroxylamine accelerates the electrolytic separation of the metals on the aluminum cathode and improves the quality of the deposits of the following metals: lead, bismuth, and others. There are 2 figures, 2 tables, and 10 references, 4 of which are Soviet.

ASHOCIATION: Rostovskiy-na-Donu gosudarstvennyy universitet (Rostov-na-Donu State University)Kafedra analiticheskoy khimii

(Chair of Analytic Chemistry)

Card 3/4

sov/153-58-5-4/28

5(4) AUTHOR:

Kovalenko, 2. N.

TIMLE:

Electrode Polarization in the Electric Reduction of Some
Nonferrous Metals on a Platinum Microcathode (Elektrodnaya
polyarizatsiya pri elektrovosstanovlenii nekotorykh tsvetnykh

metallov na platinovom mikrokatode)

PERIODICAL:

Izvestiya vysshikh uchebnykh zavedeniy. Khimiya i khimichesk

tekhnologiya, 1958, Nr 5, pp 28-34 (USSR)

ABSTRACT:

The electrode polarization plays an important role in the electrolytic separation of metals the equilibrium potentials which are close to each other. By controlling the temperature, the 1H-value and the concentration of the complex forming component the extent of the electrode polarization can be changed, and thus the separation potential can be displaced intervals that secure a complete separation of the metals to be electrolyzed. The visible current density differs in the formation of loose coarse crystalline deposits to a great extent from the actual one. The term current density is rather undefined not taking into account the active surface and its changes in the course of the electrolysis (Refs 1-3). It can

Card 1/4

507/153-50-5-4/28

Electrode Polarization in the Electric Reduction of Some Nonferrous Metals on a Platinum Microcathods

maintain its approximate importance only if a continuous fine orystelline shiny deposit is formed on the cathode. To calculate the characteristics of the electrode polarization during the the characteristics of the electrode polarization during the electric reduction on a microcathode of platinum the equation of the electric reduction on a microcathode of platinum the equation of the electric reduction on a microcathode of platinum the equation electric reduction relation can be used. These characters are reduction to the electrode polarization can be used. of the concentration polarization can be used. These characteristics make possible the outlining of correct ways in selecting the optimum conditions of the electrolytic separatian and determination of metals, especially of copper, bismuth, lead, cadmium and zinc. The author derives the equation of the electrode rolarization (8) and therefrom determines the coefficients of the logarithmic functions. Tables 2 and 3 give th charasteristics of the electrode polarization g of the 4 metage mentioned on the basis of the results obtained the author assumes that the polarization in the electric separation of the metals investigated on a solid platinum electrode is caused by two factors: 1) Hampering of the process of electric crystal lization, and 2) The slow decomposition process of the comples. metal ions. Corresponding values of the polarization characteristics in the electric separation of the metals in questication are given in figure 1. Based on the results obtained the autign

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307/153-58-5-4/28

Electrode Polarization in the Electric Reduction of Some Nonferrous Metals on a Platinum Microcathode

arrives at the following conclusions: 1) The comparison of the characteristics of the electrode polarization (%) in the electric separation of Cu, Bi, Pb, Cd and Zn on a mercury dropping cathode and on a platinum microcathode makes possible the determination of the character of the additional polarization. 2) The electrode polarization in the electrolytic separation of the metals mentioned is much lower on a mercury dropping cathode than on a solid platinum cathode. The determination of the optimum conditions of the electrolytic separation of the metals (pH-values, temperature and the concentration of the complex forming components) is made possibly the analysis of the results obtained with respect to the characteristics of the electrode polarization.

There are 1 figure, 3 tables, and 14 Soviet references.

ASSOCIATION:

Rostovskiy gosudarstvennyy universitet, Kafedra analiticheskoj khinii (Rostov State University, Chair of Analytical Chemistry

Card 3/4

KOVALENKO, P. N.

*HOHTUA

Kovalenko. P. H.

78-3-5-1/39

TITLE:

Polarographic Determinations of the Beginning of Precipitation of Tin (I) Hydroxyde From Hydrochloric Acid Solution and the Calculation of Its Solubility Product (Polyarognaficheskoye opredeleniye nachala osazhdeniya gidrookis. olova (II) iz solyanokislogo rastvora i vychislem ye yeye proizvedeniya rastvorimosti)

Zhurnal Neorganicheskoy Khimii, 1958, Vol 3, Nr 5,

pr 1065-1070 (USSR)

ABSTRACT:

PERIODICAL:

By polarographic methods that concentration of hydrochloric avid was determined, at which a precipitation of

tir (II) nydroxyde takes place.

The properties of the nercury-drop electrode allow a

successful application of the polarographic method for the

examination of the tin(II) concentration.

It has been shown that the beginning of the precipitation of tin (II) hydroxile depends on the concentration of tin ions in the solution. Together with an increase of the concentration of tin ions, during which Sn (OH) 2 occurs,

Card 1/2

the concentration of hydrochloric acid is also increased.

Polarographic Determinations of the Beginning of Precipitation of Tia (1) Hydroxide From Hydrochloric Acid Solution and the Calculation of Its Solubility Product

78-3-5-1/39

solubility product of tin(II) hydroxyde was determined at 22°C, amounting to 0.8 · 10 - 28. The solubility products of Sn(OH)2 at different tin concentration, the hydrochloric acid concentrations being constant, differ from one another, and a proportionality exists between the solubility minutes.

There are 5 figures, 2 tables, and 17 references, 15 of which are Soviet.

ASECCIATION:

Rostovskiy-na-Donu gosudarstvennyy universitet (Rosto + on-Der State University)

SUBMITTED:

May 21, 1957

AVAILABLE:

Library of Congress

1. Time-Prodictivide -- Polarographic or list. 7. Hydrochloric acid--- Polarographic analysis 3. Polarographic malysis--- light--

Card 2/2

AUTHOR:

Kovalenko, P. N.

SOV/75-13-4-13/29

TITLE:

The Application of an Indirect Titrimetric Method in the Determination of Bismuth (Primeneniye metoda dobavok pri

titrimetricheskom opredelenii vismuta)

PERIODICAL:

Zhurnal analiticheskoy khimii, 1958, Vol. 13, Nr 4, pp. 449-

452 (USBR)

ABSTRACT:

Of all known methods for the titrinetric determination of bismuth (Ref 1) the phosphate method offers the best prospects although all variants of the titrimetric determination methods of bismuth known hitherto have a low reproducibility and an insufficient accuracy. For the determination of bismuth according to the phosphate method which would be very well suited satisfying indicators are lacking for the accurate determination of the point of equivalence. The method is based on the precipitation of bismuth from nitric acid solution in the presence of sodium acetate with an excess of a given sodium phosphate solution. Af- $\frac{x}{2}$ ter the filtering off and washing of the precipitate the excess sodium phosphate is titrated back with a uranyl acetate solution Potassium ferrocyanide, or also a cochineal infusion (Ref 2) serve as indicator. A complicated method which is based on a

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SOV/75-13-4-13/29

The Application of an Endirect Titrimetric Method in the Determination of Bismuth

similar principle (Ref 3) does not offer any good results because of repeated operations causing considerable losses. A more simple method (Ref 4) is based on the direct titration of the nitric acid bismuth solution with a standard solution of $ext{Na}_2 ext{HPO}_A$, where the point of equivalence is determined by the occurrence of a color with hematin paper. There the error is 7-9%. According to that method satisfying results may be obtained when an excess reagent is added and then a back-titration is made. There are also methods based on the reduction of bismuth ions to metal by means of magnesium, zinc, copper (Ref 5), aluminum (Ref 6), and other metals. The determination takes place by a subsequent oxidation of the metallic bismuth with Ferrichloride. The FeCl, forming is quantitatively determined according to Zimmermann-Reinhard by means of potassium permanganate. Of all these methods the reduction with aluminum dust is the most simple, the most rapid, and the most accurate. The authors of the present article investigated the kinetics of the reduction of bismuth, the influence exerted by the concentration of Ferrachloride on the oxidation of the metallic bismuth. They

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The Application of an Indirect Titrimetric Method in the Determination of Bismuth

also found the optimum quantities of the Zimmermann-Reinhard mixture added. The optimum conditions for the oxidation of metallic bisnuth with a FeCl solution is mentioned. It was

found that the method of the back titration of an excess reagent increases the accuracy and reproducibility of the results in the titrinetric determination of bismuth. The following composition was found for the kinetics of the reduction process of bismuth in metallic aluminum:

| K = 1 | a | |

where a denotes the initial concentration of bismuth, and a-x the concentration of bismuth at the time t. At a temperature of 40 K = 0,125. After 18 minutes bismuth is practically reduced quantitatively. There are 3 figures, 2 tables, and 12 references, 2 of which are Soviet.

ASSOCIATION:

Rostovskiy-na-Donu gosudarstvennyy universitet (Rostov na Doma State University)

Card 3/4

The Application of an Indirect Titrimetric Method on the Determination of

SUBMITTED:

October 29, 1956

on of an Indirect Titrimetric Method on the Determination of

October 29, 1956

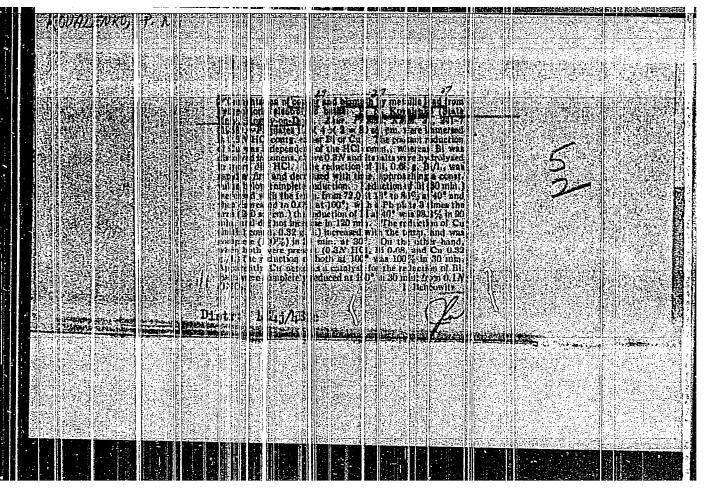
1. Bismuth--Datermination 2. Bismuth--Precipitation 3. Phosphater --Chemical relations 4. Titration

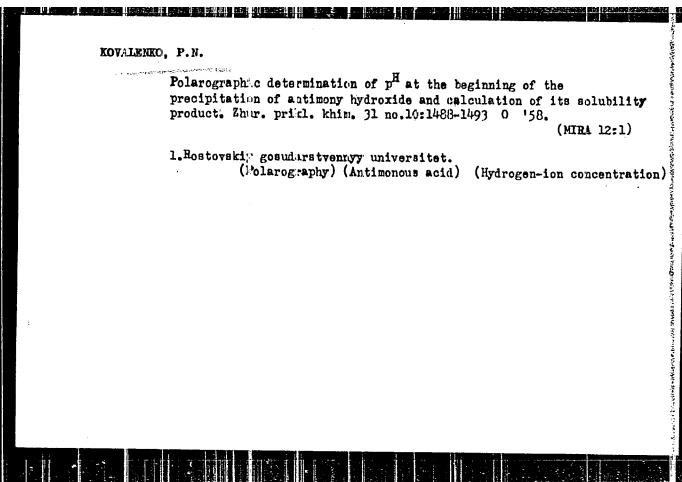
Card 4/4

KOVALENKO, P.N.

1. Rostovskiy-na-Donu gosudarstvennyy universitet.
(Tin compounds) (Precipitation) (Solubility)

"APPROVED FOR RELEASE: 06/14/2000 CIA-RDP86-00513R000825520010-8





KOVALENIO, P. N.

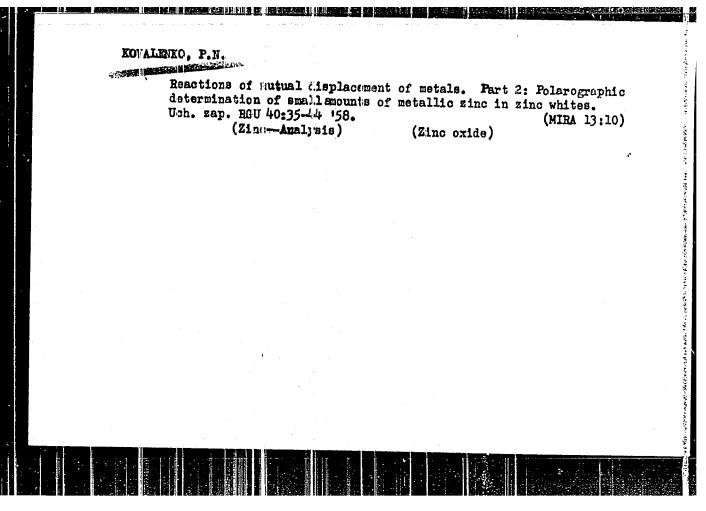
Imactions of sutual displacement of metals. Part 1: Reduction of bismuth and copper with metallic cadmium and lead, and their polarographic determination. Uch. Rap. RGU 40:3-21 158. (MIRA 13:10)

(Bismuth—Analysis) (Copper—Analysis)

KOTALENEO, P.N.

Polarographic method for determining the extent of the adsorption of metal ions from squeeus solutions by aluminum hydroxide. Uch. zap.
HGU 40:23-33 58. (MIRA 13:10)
(Adsorption) (Alumina) (Polarography)

"APPROVED FOR RELEASE: 06/14/2000 CIA-RDP86-00513R000825520010-8



Correctpitation of copper and aluminum when both are present. Uch. zap. RGU 40:4:56 56. (MIRA 13:10) (Copper hydroxide) (Aluminum hydroxide)

KOVALENKO, P.N.

Reactions of Initual displacement of metals. Part 3: Rapid method of determining load in granular slags polarographically. Uch. zap. RGU 40:57-68 158. (MIRA 13:10)

(Lead--Analysis)

(Polarography)

NATUEZHIMA, L.S.; KOVALENKO, P.N.

Hapid method of determining frace amounts of nickel and cobalt in zinc electrolytes. Uch. zep. RGU 40:69-86 158. (MIRA 13:10)

(Nickel—Analysis) (Cobalt—Analysis)

IVANOVA, Z.I.; KOVALINKO, P.N.

Potentiometric determination of calcium and magnesium. Uch. zap. (MIRA 13:10) RGU 40:93-301 158. (Magnesium--Analysis) (Gilcim--Analysis)

BAGDASAHOV, K.N.; KOVALENE), P.N.

Hectrolytic reduction of tin and antimony on nichrome and nickelplated cathodes. U:h. zap. RHU 40:113-126 58. (MIRA 13:10) (Min) (Antimony) (Reduction, Electrolytic)

KUTALENKO, P.N.; IGHINOVA, L.A.

Separation of cadmium from small amounts of zinc in a nitric acidcitric acid solution by means of an aluminum cathode, and a polarographic determination of zinc. Uch. sap. RHU 40:127-137 158.

(Cadsium)

(Zinc--Analysis)

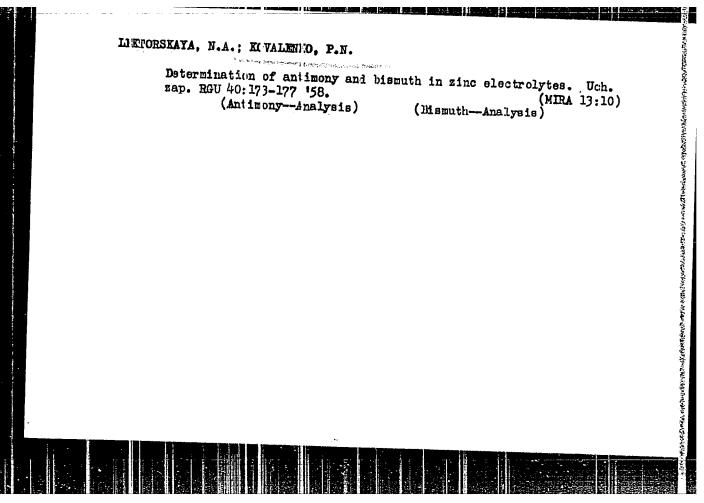
(NIRA 13:10) (Aluminum)

"APPROVED FOR RELEASE: 06/14/2000 CIA-RDP86-00513R000825520010-8

Electroanalytical determination of bismuth. Uch. zap. RGU 40:139-148
158.

(Bismuth—Analysis)

(Bismuth—Superior of bismuth)



"APPROVED FOR RELEASE: 06/14/2000 CIA-RDP86-00513R000825520010-8

5(2) 50V/156-59-1-23/54

AUTHORS: Kovalenko, P. M., Dmitriyeva, V. L. (Deceased)

TITLE: The Separation of Copper and Bismuth When Electrically

Precipitated on an Amalgamated Copper Cathode (Razdeleniye medi i vasmuta pri elektroosazhdenii ikh na amaligamirovannom

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PERIODICAL: Nauchnyye doklady vysshey shkoly. Khimiya i khimicheskaya

tekhnologiya, 1959, Nr 1, pp 97-101 (USSR)

ABSTRACT: The separation potentials and the decomposition voltages of

copper nitrate and bismuth nitrate in a sodium tartrate solution have been investigated with respect to their dependence on temperature and concentration. With increasing pH the discharge potentials are displaced in the negative direction and their values decrease upon an increase in temperature. The decomposition voltage drops strongly with increasing temperature (Diagrams). An increased concentration of sodium tartrate does not affect the separation of copper whereas the separation potential of bismuth becomes more negative. This enables a separate electric precipitation of

negative. This enables a separate electric precipitation of bismuth and copper. As an optimum a 0.5-0.8 n solution of

Card 1/2 sodium tartrate at pH 5 and 20 has been found. In this case

SOV/156-59-1-23/54 The Separation of Copper and Bismuth When Electrically Precipitated on an Amalgamated Copper Cathode

> the separation potentials and decomposition voltages for copper and bismuth show the greatest difference. However, copper forms a spongelike, loose precipitate at this temperature. A fine crystalline precipitate is not formed below 60°. For this reason it is recommended to separate copper and bismuth ir 0.5 n sodium tartrate at pH 4-5 and 60°. The results of the electrolysis carried out under various experimental conditions are shown in tables. There are 2 figures, 6 tables, and 6 references, 3 of which are Soviet.

ASSOCIATION: Kafedra analiticheskoy khimii Rostovskogo-na-Donu gosudarst-

vennogo universiteta

(Chair or Analytical Chemistry of Rostov-na-Donu State

University)

SUBMITTED:

September 11, 1958

Card 2/2

5(2) AUTHORS:

SOV/156-59-1-24/54

Lektorskaya, N. A., Kovalenko, P. N.

TITLE:

The Polarographic Determination of Bismuth and Antimony, Lead and Tin in Coint Presence (Polyarograficheskoye opredeleniye vismuta i sur'my, svintsa i olova pri sovmestnom prisutstvii)

PERIODICAL:

Nauchnyye dcklady vysshey shkoly. Khimiya i khimicheskaya tekhnologiya, 1959, Nr 1, pp 102-104 (USSR)

ABSTRACT:

The check of the electrolytic purification of tin requires a quick and reliable method for the determination of the admixtures of tismuth, antimony and lead. The halfwave potentials of tin and lead agree during their reduction. The same applies to bismuth and antimony. Sodium fluoride was used as a complexing agent to displace the discharge potentials. Na? (9.5.10⁻² to 1.19.10⁻¹ ml/l) displaces the half-wave potential of antimony by 0.2-0.076 volts with respect to the half-wave potential of bismuth and suppresses the diffusion current of tin. The concentration of hydrochloric acid in the tin salt solution in the presence of sodium chloride for the polarography of bismuth and antimony must not exceed 0.75 n and in the case of lead and tin must not be less than 1.75 n. The amplitude of the differential

Cari 1/2

The Polarographic Determination of Bismuth and Antimony, Lead and Tin in Joint Presence

wave of lead bismuth and antimony is directly proportional to their concentration. The amplitude of the wave of tin can be calculated from the total of the wave amplitudes of lead and tin. A prescription is given how to perform the polarographic analysis. The polarographic determination of the four metals has been carried cut on samples of industrial tin and on artificially composed mixtures. The accuracy achieved has been given in tables. There are 3 tables and 6 references: 3 of which are Soviet.

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ASSOCIATION: Kafedra analiticheskoy khimii Rostovskogo-na-Donu gosudarst-

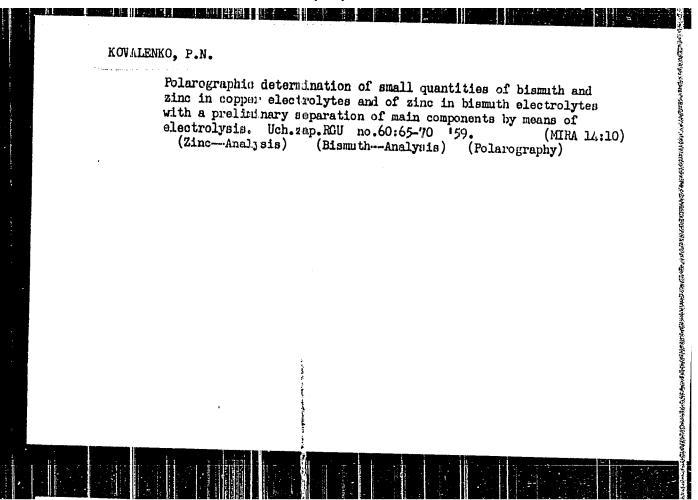
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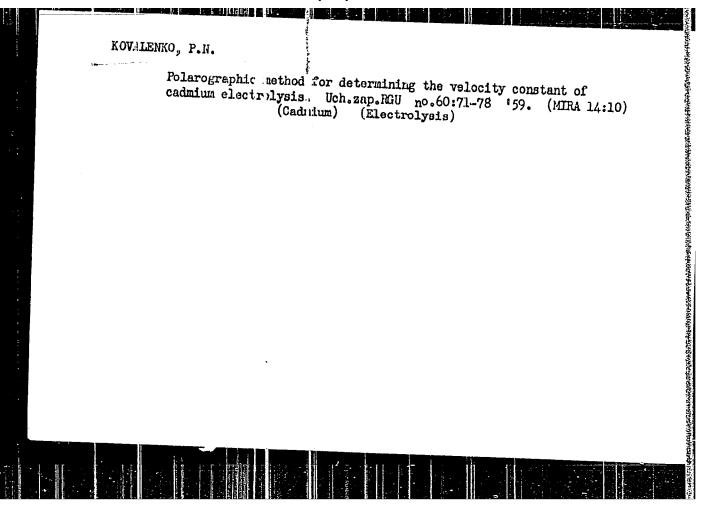
(Chair of Analytical Chemistry of Rostov-na-Donu State

University)

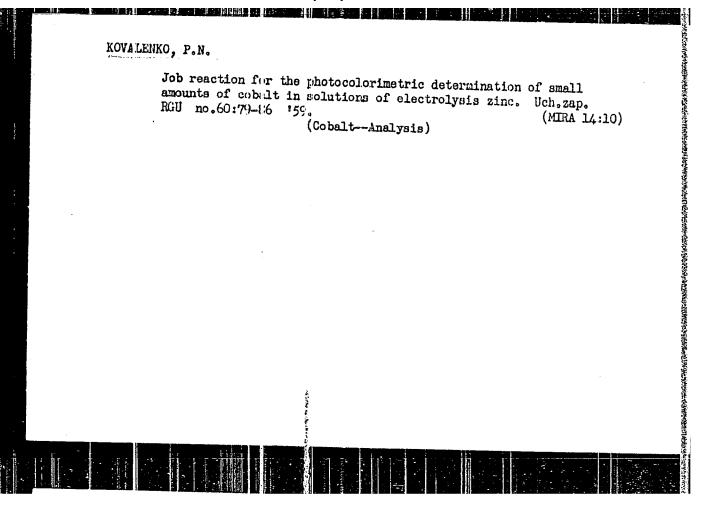
SUBMITTED: July 10, 1958

Card 2/2

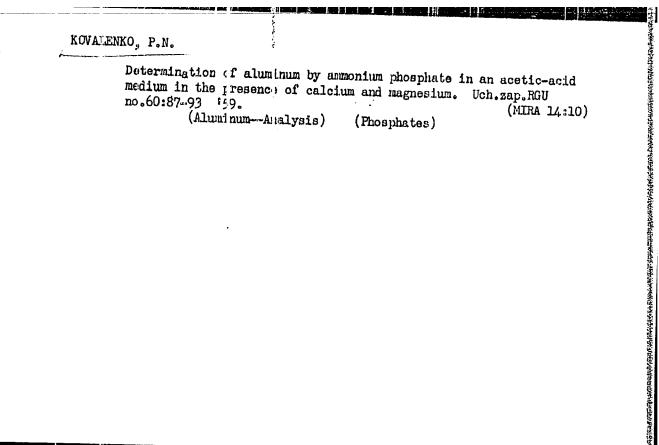




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"APPROVED FOR RELEASE: 06/14/2000 CIA-RDP86-00513R000825520010-8



KOVALENKO, P.N.

Study of chromium oxidation in the presence of aluminum. Uch.
zap.RGU no.60:95-104 159. (MIRA 14:10)
(Chromium) (Oxidation) (Aluminum)

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on and the properties of the contraction of the con

BAGDASAROV, K.N.; KOLLERKO, P.N.

Polarographic determination of zinc in tin with the precementation of tin by metallic aluminum. Uch.zap.RGU no.60:109-115 '59.

(MIRA 14:10)

(Zinc--Analysis) (Tin-Analysis) (Aluminum)

"APPROVED FOR RELEASE: 06/14/2000 CIA-RDP86-00513R000825520010-8

IVANOVA, Z.I.; KOVALETKO, P.N.

Potentiometric determination of manganese in zinc electrolytes.

Uch.zap.RGU 110.60:23-127 *59. (MIRA 14:10)

(Manganese-Analysis) (Potentiometric analysis)

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IVANOVA, Z.I.; KOVALENSO, P.N.

Potentiometric method for determining chlorides in dry products of zinc manufacture. Uch.zap.NGU no.60:129-134 '59.

(Chloride:) (Zinc)

5(2) AUTHORS:

Kovalenko, P. N., Moricheva, N. P.

SOV/153-2-3-3/29

TITLE:

Photocolorimetric Determination of Antimony in Zinc

Electrolytes and Alloys

PERIODICAL:

Izvestiya vysuhikh uchebnykh zavedeniy. Khimiya i khimicheskaya

tekhnologiya, 1959, Vol 2, Nr 3, pp 322-327 (USSR)

ABSTRACT:

In the introduction the existing methods are briefly mentioned as well as the following Soviet authors: Kuznetsov (Ref 6), Lur're, Filippova (Refs 7, 9). The complex of antimony with methyl violet was extracted with benzene and determined with the colorimeter of the type FEX-2 (calibration curve see Fig 1). The investigation was made in order to find out to what degree this determination is disturbed by other ions. The determination of 0.02 mg Sb in 50 ml showed that amounts of up to 40 mg Cu, 40 mg Ni. 100 mg Cd have no noticeable influence (Table 1). Fe $^{3+}$ contents cause strong negative deviations which may be removed by increased hydrochloric acid concentration (Fig 2) and a higher addition of KNO2 (Table 2). Furthermore, the influence

Card 1/2

exercised by $2nSO_4$ and $MnSO_4$ on the determination of antimony

APPROVED FOR RELEASE: 06/14/2000

CIA-RDP86-00513R000825520010-8"

Photocolorimetric Determination of Antimony in Zinc Electrolytes and -Alloys

etric Determination of Antimony in SOV/153-2-3-3/29

lytes and -Alloys

was inventigated (Table 3). 20 mg MnSO₄ and 250 mg ZnSO₄ in

50 ml do not influence the determination of 0.002 to 0.060 mg
antimony amounts of less than 0.002 mg cannot be determined
precisely. Moreover, the antimony content in a bronze, a
tin-lead alloy, Babbit I and Babbit II were determined (Table 4)
There are 2 figures, 4 tables, and 10 references, 5 of which are
Soviet. Soviet.

ASSOCIATION: Rostovsk.y-na-Donu gosudarstvennyy universitet; Kafedra

analitic leskoy khimii (Rostov-na-Donu State University Chair

of Analytical Chemistry)

March 6, 1958 SUBMITTED:

Card 2/2

5(2) AUTHORS:

Kovalenko, P. N., Lindorf, T. V.

SOV/78-4-8-34/43

TITLE:

The Polarographic Determination of the pH at the Beginning of the Bissolution and of the Solubility Product of the Hydroxide of Trivalent Thallium (Polyarograficheskoye opredeleniye pH nachela rastvoreniya i proizvedeniya rastvorimosti gidrookisi

trekhvalentnogo talliya)

PERIODICAL:

Zhurral neorganicheskoy khimii, 1959, Vol 4, Nr 8,

pp 1919-1923 (USSR)

ABSTRACT:

The Euthors pointed out the advantages of the polarographic method already in earlier papers (Refs. 1, 2, 6). Various scientists (Refs. 1,2,6-8) found that the solubility product is no constant but depends on the ionic concentration, above all, on the concentration of the hydroxyl groups. This apparent by placing the activity of the ions instead of the concentration non-agreement with the law of mass action could be eliminated B = f.c (a = concentration of the solved ions). Since trivalent : hallium shows no polarographic wave, whereas monovalent thallium may be easily polarized, the following method

Card 1/3

was chosen for the determination of the pH of the solution

SOV/78-4-8-34/43
The Relarographic Determination of the pH at the Beginning of the Dissolution and of the Solubility Product of the Hydroxide of Trivalent Thallium

TI(OII) and its solubility product: at given pH a saturated solution of TI(OH) was produced, TI³⁺ was quantitatively reduced to TI⁺ by means of hydrazine sulphate and the latter was polaregraphically determined. The dependence of the diffusion purrent on the pH of the medium is shown by table 1 and figure 1. Since the concentration of TI⁺ after the reduction is equal to the original concentration of TI⁺ the determination of the TI³⁺ concentration was carried out by means of a calibration curve id - original figure 2) (id = intensity of the diffusion current in Ma). The dependence of the conscentration of the thallium ions on the pH of the solution is shown by figure 3. There exsists a reverse logarithmic dependence between original concentration. By extrapolating this straight line -lg solubility product - ionic concentration (Fig. 4) the solubility product for TI(OH), was determined to

Card 2/3

The Polarographic Determination of the pH at the Beginning of the Dissolution and of the Solubility Product of the Hydroxide of Trivalent Thallium

be 6.5.10 **35. The dissolution of TI(OH) begins at pH = 3.46. The method by D. F. Spenser and B. Abegg (Ref 10) for determining the solubility product of TI(OH) has shortcomings and therefore leads to considerable errors. There are 4 figures 1 table, and 13 references, 11 of which are Soviet.

SUBMITTED:

December 3, 1957

Card 3/3

SOV/78-4-9-7/44 5(2) Kovalenko, P. N., Geyderovich, O. I. AUTHORS:

The Determination of the pH of the Beginning of Precipitation as Well an of the Activity Product of Beryllium Hydroxide TITLE:

PERIODICAL: Zhurnal naorganicheskoy khimii, 1959, Vol 4, Nr 9,

pp 1974-1378 (USSR)

The publications on the solubility of beryllium hydroxide are contradictory (Refs 1, 2, 8). From references 1-5 it ABSTRACT:

is evident that the composition of the hydroxyl compounds of Be varies with the conditions of precipitation. The pH values at the beginning and the end of the precipitation of Be(OH)2 were letermined polarographically by means of a dropping

mercury cathole. A direct proportionality between Be concentration and strength of diffusion current of good reproducibili-

ty was obtained on addition of tetramethyl and tetraethyl ammonium salts (Fig 1). Average values of a number of measure-

ments are given in table 1. As shown in figure 2, precipitation begins at pH 2.35 - 2.65 depending on the Be concentration

Cari 1/3

The Determination of the pH of the Beginning of Precipitation as Well as of the Activity Product of Beryllium Hydroxide

(between 1.10⁻³ and 0.5.10⁻³) but is always completed at pH 3.1, irrespective of the Be concentration. Basic salts are formed at the outset, the hydroxide only being formed at the end of precipitation (pH 2.9 - 3.1). The solubility product (BP) is not a constant, as is shown in figure 3, but depends on the concentration of beryllium, a linear relationship existing between -lg SP and the concentration. On extrapolating the straights plotted for the various concentrations to zero concentration, -lg AP = const = -25.7 is obtained for the activity product (AP). This corresponds to the concentration of beryllium at the end of precipitation at pH 3.1. Thus, the AP for Be(CH)₂ is equal to 2.10⁻²⁶. There are 3 figures, 1 table, and 24 references, 15 of which are Soviet.

ASSOCIATION: Rostovskiy-na-Donu gosudarstvennyy universitet Card 2/3 (Rostov-ns-Donu State University)



5(2), 5(4) AUTHOES:

Ivanova, Z. I. and Kovalenko, P. N.

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SOV/75-14-1-17/32

TITLE:

Potentionetric Determination of Phosphate Ions (Potentsio-

metriche skoye opredeleniye fosfat-ionov)

PERIODICAL:

Zhurnal analiticheskov khimii, 1959, Vol 14, Nr 1, pp 87-90 (USSR)

ABSTRACT:

The authors worked out a rapid and exact method for the potentiometric titration of phosphate ions, in which a mercury electrode and a titrator consisting of a solution of mercury (II) nitrate is used. A saturated calomel electrode is used for comparison. The indicator electrode used in this case offers several advantages compared to the mercury electrodes hitherto used (Refs 1,2). It is illustrated and described in detail in the present paper. An investigation of the accuracy of this method showed that with a decrease of phosphate solution concentration errors increase. For quantities of not less than 5 ng/1 the accuracy of potentiometric titration is satisfactory. The reproducibility of results is good. An addition of ethyl alcohol to the solution reduces the error committed in the titration of small quantities of phosphate ions, as alcohol on the one hand diminishes the adsorption of phosphate ions,

Card 1/3

Potentiometric Determination of Phosphate Ions

SOV/75-14-1-17/32

and, on the other, reduces the solubility of the precipitate (Refs 3,4). The bottom extracts to be analyzed frequently contain colloidal substances, which, however, do not disturb potentiometric determination. The addition of gelatin in quantities that are 20 to 100 times in excess of those of phosphate ions exercises practically no influence upon the results. The error committed when determining small quantities of phosphate ions can be considerably reduced and even fully eliminated if determination is carried out by the method of double addition (Refs 5-8). A comparison of the respective results is given by a table. Chloride ions which very frequently occur in samples together with phosphate, do not change titration results even if present in quantities that are 100 times greater. It is even possible to determine phosphate and chlorides successively from one and the same sample. The titration of phosphate can be carried out in the $p_{\rm H}$ - range of 10 - 3. The ions Ca $^{-}$ Be $^{2+}$, Mg $^{2+}$ and SO $_{_{A}}^{2-}$ do not disturb determination. The method was used for the analysis of minerals. It was found that as regards accuracy it is not surpassed by the gravimetrical method of determination (double precipitation as pyrophosphate). The

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Potentiometric Determination of Phosphate Ions

SOV/75-14-1-17/32

potentiometric method has the advantage of being rapid and simple (analysis takes 1,5 to 2 hours). There are 3 figures,

3 tables, and 8 Soviet references.

ASSOCIATION:

Rostovskiy gosudarstvennyy universitet (Rostov State

University)

SUBMITTED:

September 23, 1957

Card 3/3

5(2) AUTHORS:

Ivanova, N. I., Kovalenko, P. N.

SOV/32-25-3-12/62

TITLE:

Determination of Chlorides in Solutions of Zinc Production According to the Method of Noncompensated Potentiometric Titration (Opredeleniye khloridov v rastvorakh tsinkovogo proizvodsiva metodom nekompensatsionnogo potentsiometricheskogo

titrovanija)

PERIODICAL:

Zavodskay: Laboratoriya, 1959, Vol 25, Nr 3, pp 290 - 291

(USSR)

ABSTRACT:

A potenticmetric noncompensated method was devised for the titration of small amounts of chloride in zinc and cadmium electrolytes. The method is based upon the application of a titrated mercury solution. Metallic mercury is used as an indicator electrode and a tungsten electrode serves as comparisor electrode (Fig). The titration vessel has already been described (Ref 1). Solutions of a chloride content of 0.2 - 120 mg per 100-150 ml may be investigated. The limiting error in the determination is between ± 0.3 and ± 3.7%

Card 1/2

(Table 1). At a pH value of from 3 to 8 the most accurate results are obtained. The presence of up to 130 g/l zino, up



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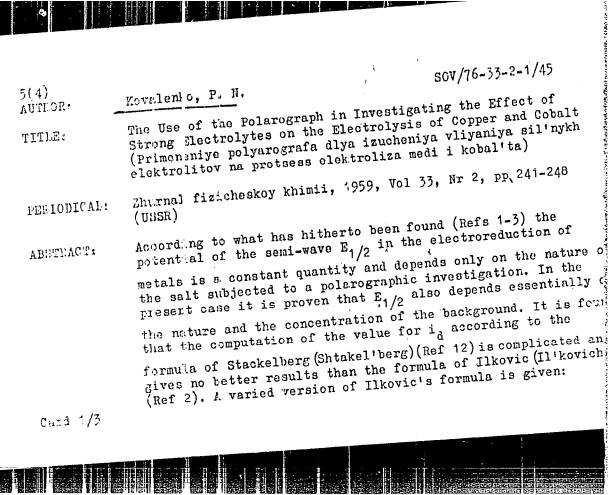
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Determination of Chlorides in Solutions of Zinc Production SOV/32-25-3-12/62 According to the Method of Noncompensated Potentiometric Titration

to 14 g/l manganese, up to 90 mg/l cadmium, up to 50 mg/l cobalt, up to 10 mg/l antimony, and up to 2 mg/l copper does not disturb the determination of chloride (Table 2). The maximum deviation of potentiometric determination from the analysis cirried out by the gravimetric methods is ± 0.72%. Duration of analysis: 5 - 10 minutes. There are 1 figure, 2 tables, and 1 Soviet reference.

ASSOCIATION: Rostovskiy gosudarstvennyy universitet (Rostov State University)

Card 2/2



The Use of the Polarograph in Investigating the SOV/76-33-2-1/45

Effect of Strong Electrolytes on the Electrolysis of Copper and Cobalt

 $i_d = 605$, nc $(a_D - b_{\mu\nu})^{1/2}k$, which allows determinations of the diffusion-current with more exact results. The experiments in question were made with sulphuric-, and hydrochloric-acid solutions of cobalt $(2 \cdot 10^{-3} \text{ mol/1})$ and copper $(2.5 \cdot 10^{-3} \text{ mol/1})$ on polarographing backgrounds of solutions of several cations of the I, II, III and IV analytical groups. The copper-reduction proceeds under these conditions reversibly, while in the case of cobalt also chemical polarization occurs. The latter is greater at the Hg-cathode in the case of sulphuric-acid backgrounds greater than with hydrochloric acid backgrounds. The value of $E_{1/2}$ in cobalt, shifts in dependence of the nature of the background considerably towards negative values; while in copper a rather strong effect only by AlCl3 and BaCl2 solutions is noticeable. The diffusion-current of the Cu and Co-ions changes it by polarographing with the concentration of the examined electrolyte and diminishes all the more as the valence of the electrolyte-ion, the concentration remaining the same, increases (Tables 1, 2).

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Card 2/3

The Use of the Polarograph in Investigating the SOV/76-33-2-1/45 Effect of Strong Electrolytes on the Electrolysis of Copper and Cobalt

> By investigations of copper, which took place on a background of iron (III) and cobalt, deformed polarograph-waves were obtained. There are 4 figures, 2 tables, and 15 references, 8 of which are Soviet.

ASSOCIATION: Gosudarstvennyy universitet, Rostov-na-Donu

(State University, Rostov-na-Donu)

SUBMITTED:

January 10, 1957

Card 3/3

NADEZHINA, L.S.; KOVALEIKO, P.N.

Polarographic method of determining the diffusion coefficients of nickel and cobalt in solutions of various complex-forming compounds. Trudy LPI no.201:127-135 159. (MIRA 13:3) (Nickel) (Cobalt) (Diffusion)



KCVALENKO, Petr Nikitich; SIMONOV, A.M., prof., red.; ZARKHINA, I.Ya., red. izd-va; PAVIICHENKO, M.I., tekhn. red.

[Combined electrochemical analysis of monferrous metals] Kombinirovannyi elektrokhimicheskii analim tsvetnykh metallov. Rostovna-Janu. 1zd-vc Rostovskogo univ., 1960. 204 p. (MIRA 14:9) (Nonferrous metals—Analysis) (Electrochemical analysis)



KOVALENKO, P.N.; DEGTYAREVA, N.I.

Polarographic determination of the start of the precipitation of a basic salt of antimony (V) in a hydrochloric acid solution, and calculation of the solubility product of this salt. Zhur.neorg. khim. 5 no.6:3189-1195 Je 160. (MIRA 13:7)

1. Rostovskiy-na-Donu gosudarstvennyy universitet.

(Anti:nony chloride)

(Redu:tion, Electrolytic)



S/073/60/026/005/004/019 B004/B063

AUTHORS:

Kovalenko, P. N. and Bagdasarov, K. N.

TITLES

Electrodic Polarization in the Electrodeposition of Cadmium, Tin, and Antimony

PERIODICAL:

Ukrainskiy khimicheskiy zhurnal, 1960, Vol. 26, No. 5, pp. 573-570

TEXT: Polarization in the electrolytic reduction of Cd, Sn, and Sb has been studied under conditions of practical quantitative electroanalysis. Copper- and nickel-plated Pr grid cathodes, and also spiral nichrome or Al electrodes were used for the purpose. The cathode potential was measured by the method of compensation. The effective activation energy B was calculated from the function $\log I = A - B/2.5RT$ (1) (I - current density; A - constant; B - effective activation energy). To be independent of variations in current density, the initial current density I, and the

final current density I_n were substituted in equation (1). From the equation $\log(I_1/I_n) = (B/2.3R)(1/T_n - 1/T_1)$ B was calculated to be Card 1/2

Electrodic Polarization in the Electrodeposition of Cadmium, Tin, and Antimony

S/073/60/026/005/004/019 B004/B063

4.57 AlogI(\(\triangle\)/T). The effective activation energy obtained for Cd was equal to 10,000 cal/mole. Chemical polarization occurred during the reduction of Cd on the copper-plated Pt electrode. For the reduction of Sn and Sb on the copper- and nickel-plated Pt electrodes, activation energy was 6000-6700 cal/mole. This process was accompanied by concentration polarization. The metals were quantitatively deposited in the form of brilliant, fine-crystalline substances. The high value of B (12,000 - 13,000 cal/mole) during the electrolysis of Sn and Sb on an Al cathode is due to the destruction of the passivating film on the Al surface. The Sn and Sb deposits became loose as a result of the dissolution of Al. None-theless, they were quantitatively deposited. S. V. Gorbachev is mentioned. There are 4 figures, 2 tables, and 11 Soviet references.

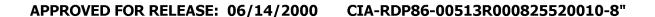
SUBMITTED: April 1, 1959

Card 2/2

KOVALENKO, P.N.; BASHKOVA, L.F.

Polarographi: determination of zinc in granular slags, with its preliminary extraction by cementation with metallic magnesium. Zhur. prikl. khim. 33 no.ll:2471-2475 N '60. (MIRA 14:4)

1. Rostovskiy-na-Donu Gosudarstvennyy universitet.
(Zinc-Analysis)
(Magnesium)



8/137/61/000/012/146/149 A006/A101

AUTHOR:

Kovalenko, P. N.

TITL 3:

The use of a polarograph to study some factors affecting the rate of metal electrolisis

or medal discoloring

PERI DDICAL:

Referativnyy zhurnal, Metallurgiya, no. 12, 1961, 12, abstract 12K65 (V sb. "Fiz. khim metody analiza i kontrolya proiz-va", Rostov-na-Donu, Rostovsk un-t, 1961, 3-21)

TEXT: The author studied the effect of the concentration of complex-forming Na citrate and tartrate components on the effective diffusion factor and the radius of solvated Cd and Pb ions. The rate of electrodeposition of the metal is determined by the rate of ion diffusion from the solution into the surface diffusional layer. Electrodeposition proceeds according to the law of single-molecular reactions. The author investigated the effect of citrate concentration on the rate of electrolytical Cu deposition. The effect of the composition of the medium on changes in the motion speed of ions is shown in the effective factor of their diffusion (D_e). To measure D_e the polarographic method is employed. The radius and thickness of coatings of solvated Pu, Cu, Pd, Cd

Card 1/2

S/137/61/000/012/146/149 /\do6/A101

The use of a polarograph to study ...

and in ions are calculated by the Smolukhovskiy-Einstein formula. In an HCl-medium Bi has the least effective radius, the thickness of the solvated coating is small, the Ei ion acquires a greater mobility and the electrodeposition rate is relatively high. The Pb-ion behavior is analogous. Cu forms complex salts with plain inorganic compounds. The effective radius of ions subjected to electro-reduction on the mathods, depends strongly on pH of the solution. The diffusion rate at higher pH decreases in all cases with the exception of In. The presence of gelatin reduces the diffusion rate of ions. There are 40 references.

V. Pedanova

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[Abstracter's note: Complete translation]

Card 2/2

3/137/61/000/012/147/149 A006/A101

AUTHORS:

Lektorskaya, N. A., Kovalenko, P. N.

TITLE:

Determining molybdenum by the polarographic method

PERIODICAL:

Referativnyy zhurnal, Metallurgiya, no. 12, 1961, 13, abstract 12K69 (V sb. "Fiz.-knim. metody analiza i kontrolye proiz-va".

Rostov-na-Donu, Rostovsk. un-t, 1961, 28-32)

TEXT: An investigation was made for the purpose of selecting more simple conditions for the polarographic determination of Mo. The measurements were made on a visual polarograph with a galvanometer. To prepare the Mo solution ammonium molybeate salt was employed. The concentration of the initial solution was 1.10^{-2} mol/1. Investigations were made on the reduction of Mo in acetic and boric acid solutions, a mixture of glycerin and H_2SO_4 solution, K rhodanide and CH3COCH solutions. It was established that molybeate ions were reduced on a drop Eg-cathode on a background of CH3COCH at ~ 0.42 v of the halfwave potential. The intensity of the diffusional current and the halfwave potentials are practically constant at 1.0 - 3.5 n. CH-COOH concentration. The diffusional waves are well pronounced. The intensity of the diffusion current of Mo is a direct

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Determining molybdenum by the polarographic method

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function of its concentration. (n the basis of data obtained, a method was developed to determine Mo in steel. The steel sample is dissolved in HCl in the presence of HNO3. The hot solution is neutralized with a NaOH solution so that Fe(OH) a precipitates. The solution with the precipitate is brought to boiling, cooled and transferred into a measuring retort, filled up to the mark and filtered. A portion of the filtrate is placed into 2 measuring retorts. In one of the retorts a titrated solution of ammonium molybdate is added, then 3 - 4 drops of CH2COOH are added into both retorts and the solution is filled up to the mark. Prior to polarography, No is blown through the solutions during 10 - 15 minutes. There are 12 references.

L. Vorob'yeva

[Abstractor's note: Complete translation]

Card 2/2

s/137/62/000/002/143/144 A052/A101

AUCHOR:

Kovalenko, P. N.

TITI

The polarographic determination of Pb and Bi in the presence of Fe

PERIODICAL:

Referativnyy zhurnal, Metallurgiya, no. 2, 1962, 14, abstract 2K67 (V sb. "Fiz.-khim, metody analiza i kontrolya proiz-va". Rostov-na-Donu, Rostovsk. un-t, 1961, 22-27)

The conditions of the polarographic determination of Pb and Bi in the presence of Fe are worked out. To reduce Fe3+ to Fe2+ hydroxylamine is used. The polarography of Bi and Ph is performed on the nitrotartaric background at pH = 4.2 - 4.5 and the Na tartrate concentration of 0.1 - 0.5 mol/1. The value on ciffusion current of Bi and Pb does not change with an increase of hydroxylamum concentration up to 2%. Small quantities of Fe²⁺ do not change the intensity of diffusion current of Bi and Pb; FeSO4 concentrations from 0.2 to 0.3 mol/1 reduce diffusion current by 5 - 10.5% for Bi and up to 13% for Pb. For a complete reduction of Fe3+ to Fe2+ at its content of 0.2 - 0.3 mol/1, 2% hydroxylamine is sufficient. As a more effective variant of the polarographic analysis of Bi and Po it is recommended to apply a preliminary cementation of ions of these metals

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The rolarographic determination ...

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with Zn_{\star} this comentation proceeds rather satisfactorily in 2-normal HC1 solution with the addition of 3 g Zn_{\star}

L. Vorobiyeva

[Abstracter's note: Complete translation]

Card 2/2

5/081/61/000/022/016/076 B102/B108

AUTHORS:

Kovalenko, P. W., Bagdasarov, K. N., Byzova, R. P.

TITLE:

Electrolytic separation of bismuth from small quantities of lead and cobalt, cadmium and zinc, and the polarographic

determination of microimpurities

PERIODICAL:

Referetivnyy zhurnal. Khimiya, no. 22, 1961, 108-109, abstract 22D39 (Sb. "Fiz.-khim. metody analiza i kontrolya proiz-va", Rostov-na-Donu, Rostovsk. un-t, 1961, 33-41)

The conditions of electrodeposition of Bi from nitric-acid TEXT solumions containing glucose on a Cu-coated Pt cathode are investigated. The offects of acidity of the solution and of temperature on the rate of electrodeposition of Bi at constant cathode potential, and on the quality of the deposit are shown. A combined electrochemical method of determining microquantities of Pb and Co, Cd and Zn in electrolytic Bi solutions has been worked ou. In electrolysis with nitric-acid solutions Bi is deposited quantitatively, the metal impurities are determined polarcgraphically upon a background of 0.5M KSCN solution. Card 1/2

Electrolytic separation of bismuth... note Complete translation.]

S/081/61/000/022/016/076 B102/B108

Card 2/2

2/137 51/000/012/145/149 AGC 10 1

AUTHOIL:

Kovalenko, P. N.

TITLE:

Electrolytic separation of lead from cadmium and possinophic

determination of codmium in a tartrate buffer solvenses

PERIODICAL: Referativncy zhurned, Metallurgiya, no. 12, 1961, 11, abstract 12K61 (V sb. "Fig.-khim, metody analize i kontrolya prole-va" Rostov-na-

Donu, Hostovsk. un-t, 1961, 42-50)

An electrolytical method is suggested of separating and determining Pb and C1 at low Cd contents on an Al-cathede. The method is beand in 16 electrolysis at pH 4 and optimum Na tartrate concentration of 0.4 mol/2, and by the further determining of (d by the polarographic method on the background of an ammonia-tartiate builter relution. The bias voltage of selt decomposition and the subside potential under changed specificalytical conditions, were studied by the compensation method. The cathode potential was measured 2 minutes after the current supply to the closuit. The cathide was a spiral-shaped cylinder; the wire length was 97 cm. the dlameter was 0.23 cm and the operational surface of the electrode 70 cm2. A Ft-Winkler electrode was employed as anode. The

Card 1/3

Electrolytic separation of lead from cadmium ...

S/137/61/000/012/145/149 A006/A101

author studied the effect of temperature, pH of the electrolyte, and the concentration of Na tartrate on the salt decomposition voltage, the magnitude of the cathode potential and the quality of the Pb-deposit singled out. With higher pH of the solution increasing to 4, the salt decomposition voltage of Pb decreases and with a further increase of pH rises sharply, since the stability of the complex compound of the Pb tartrate ion increases. The salt decomposition voltage cf Cd increases gradually if pF rises up to 4. At pH >1 the salt decomposition voltage becomes higher than in Fb salt, the potential of Cd deposition is shifted in respect to Fb toward a more negative side since changes of the anodic process of Pb decomposition take place; the Pb is deposited on the anode in the form of PbO2. At pH 4 the greatest difference is observed between the salt decomposition voltage of Cd and Pb and between the deposition potentials of these motals. Electrolysis is performed at 50° C. 1.85 $_{\odot}$ voltage, and 1.60 v at 75° C. The quality of the motal deposit is better at 75° C since it is deposited in the form of a demand 10° . The ancelerate Pb deposition its electrolysis is carried in the remarks of 0.5 - 1.0 g hydratine chloride, at a difference of motentials as high and 10° . Under these

Card 2/3

Electrolytic separation of lead is om oadmium ...

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conditions Pb is fully deposited in the cathode within 70 - 90 minutes. After singling out Pb, Cd is polarographically determined from the same solution.

V. Pedanova

[Abstracter's note: Complete trasslation]

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Card 3/3

S/137/61/000/011/119/123 A060/A101

AUTHOR:

Kovalenko, P.

TITLE:

Electrolytic sparation of bismuth from nickel and the polaro-

graphic determination of nickel

FERIODICAL:

Referativnyy 2 nurnal, Metallurgiya, no. 11, 1961, 11, abstract 11K69. (V sb. "Fiz.-khim. metody analiza i kontrolya proiz-va"

Rostov-na-Donus, Rostovsk. un-t, 1961, 51 - 58)

TEXT: The method of electrolytic deposition is used for separating Ei from small quantities of Ni, making it possible to avoid the deposition of Ni. The electrolytic separation of Bi from small quantities of Ni in a nitric acid solution without rathode-potential control is carried out in 60 min at 60 - 70°C, voltage 2 volts and at an HNO₃ concentration of 0.14 - 0.18 N. A higher potential promotes the formation of a crude, nonuniform and loose deposit, capable of absorbing Ni ions. A lower potential leads to the formation of an amorphous loose deposit which is washed with considerable losses. The pdaragraphy of Ni is carried but using as background a 0.8 N solution of KSCN at pH 4 - 5 in the presence of commensurate quantities of Bi, Co and other

(ard 1/2

Electrolytic separation....

A/137/61/000/011/119/123 A060/A101

V. Pedanova

cations. After separating the Bi, the solution is evaporated down to a small volume, transferred into a 50-ml flask, and a pH of about 4-5 is established. Then one adds the KCON solution and the pdarography is carried out. The $E_{1/2}$ of Ni on this background is $\simeq 0.69-0.71$ volts. The error of Ni determination 1; \pm 4% (relative). There are 17 references.

[nbstracter's note: Complete [ranslation]

Card 2/2

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AUTE OR:

Kovalenko, P. N.

TITIES

Decomposition voltage and deposition potential during nickel electrolysis from buffer solutions using platinum electrodes

PERIODICAL: Heferativnyy zhurnals, Metallurgiya, no. 12, 1961, 31, abstract 120217 (V mb. "Fiz. them. metody analiza i kontrolya proiz-va", Rostov-na-Donu, Rostlevsk. un-t. 1961, 69 - 79)

TEXT: The author studied cirtimum conditions of Ni-deposition from an oxalate buffer solution in the form of a dense, lustrous, metallic deposit without impurities. The investigation we made with 4.96 • 10-2 n. Ni solution; pH of the solution varied from 2 to 10.7 The decomposition voltage and the Ni deposition potential increased continuously with higher pH, in particular, at 0.28 mole/1 concentration of ammonium oxalate within 2 - 4 pH. At a rise of the solution temperature up to 60°C, the values car decomposition voltage and Ni deposition potential increase; at a rise up to 80 - 100°C, these values drop considerably due to reduced cathode polarization. Best conditions of electrolytical Ni deposition from an exalate solution are: 0.21 M solution (NH4)2C2O4, pH 4, temperature 100°C, Card 1/2

Decomposition voltage and deposition potential...

S/137/61/000/012/048/149 A006/A101

voltage 1.6 - 1.8 v. During electrolysis of 5.10⁻² n. NiSO₄ solution (0.176 g per 120 ml) in the presence of 0.21 mole/1 of ammonium oxalate, its basic amount (80%) is deposited within 40 minutes; during electrolysis of 1.10⁻² and 5.10⁻³ n.

0. Svodtseva

[Abstracter's note: Complete translation]

Card 2/2

5/137/61/000/011/109/123 A060/A101

AUTHORS:

Kovalenkc, P. N., Rozin, G. N., Osipov, O. A., Yevstifeyev, M. M.,

Kravtsov, Ye. Ye.

TIPLE:

Anodizing in the presence of chlorine ions and the quality control

of the oxide film for the A 16 T (D16T) alloy

PERIOII CAL: Referativnyy zhurnal. Metallurgiya, no. 11, 1961, 61, abstract 111406 (V sb.: "Fiz.-khim. metody analiza i kontrolya proiz-va".

Rostov-na-Donu, Rostovsk. un-t, 1961, 97 - 102)

TEXT: The effect of the presence of C1 in the anodizing vat upon the potential, thickness of the oxide layer, and the duration of the drop test of the D15T alloy in the process of sulfuric acid anodic oxidizing was investigated. The presence of 0.5 g/liter Cl improves the poential of the alloy being anodized and leads to the production of losser films, with practically no effect upon the thickness and formation rate of the oxide film being formed. The possibility is shown of sulfuric acid anodizing of clad sheet D16T duralumin in the presence of Cl to the quantity ≤ 0.5 g/liter. The optimum conditions of anodizing, both in

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Arodizing in the presence of...

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the presence and the absence of chlorides, are $\rm D_a$ 2 amps/dm² and the anodizing time is 30 min. There are 8 references.

Ye. Layner

[Abstracter's note: Complete translation]

Card 2/2

\$/137/61/000/011/110/123 A060/A101

AUTHORS:

Kovalenko, P. N., Fosin, G. N., Csipov, O. A., Yevstifeyev, M. M., Kravtsov, Ye. Ye.

TITLE:

Filling and control of anodized alloy A 16 T (D16T) in the presence of chlorine and sulfate ions

PERIODICAL: Referativnyy zhurnel. Metallurgiya, no. 11, 1961, 61, abstract 111407 (V sb.: "Fi: .-khim. metody analiza i kontrolya proiz-va". Rostov-na-Donu, Rostovsk. un-t, 1961, 103 - 114)

The authors studied the effect of the presence of chlorine and sul-TEXT: fate ions upon the process of chromate filling of the oxide film on the D16T alloy. The dependence of the film quality (drop test and thickness of the film) upon the concentration of impurity ions is established. Sulfate ions suppress the chromate ion adsorption, as result of which the films have a lighter tint. It is recommended that films formed at high D be subjected to a longer filling. It is entirely possible to raise the admissible limit of admixtures in the filling vat from 1.5 to 3, and from 3 to 6 grams per liter for chlorine and sulfate ions respectively. There are 8 references. [Abstracter's note: Complete translation] Ye. Layner

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